



US006136128A

United States Patent [19]

Chung

[11] Patent Number: 6,136,128**[45] Date of Patent: Oct. 24, 2000****[54] METHOD OF MAKING AN ADHESIVE PREFORM LID FOR ELECTRONIC DEVICES****[75] Inventor: Kevin Kwong-Tai Chung**, Princeton Township, N.J.**[73] Assignee: Amerasia International Technology, Inc.**, Princeton, N.J.**[21] Appl. No.: 09/232,936****[22] Filed: Jan. 19, 1999****Related U.S. Application Data****[60]** Provisional application No. 60/090,295, Jun. 23, 1998, and provisional application No. 60/092,170, Jul. 9, 1998.**[51] Int. Cl.⁷ B44C 1/17; B29B 11/04; H05K 5/06; B41M 3/12****[52] U.S. Cl. 156/235; 156/230; 156/231; 156/240; 156/247; 156/289; 174/52.3; 250/239; 427/146; 427/148****[58] Field of Search 174/52.3, 52.5, 174/52.6, 52.4; 156/230, 231, 235, 240, 247, 277, 289; 427/146, 148, 282****[56] References Cited****U.S. PATENT DOCUMENTS**

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An electronic device, such as an integrated circuit, hybrid circuit or a transistor, is enclosed within an electronic package or module so as to be protected from contaminants and the external environment. An electronic device according to the present invention is enclosed within a package or module having a lid that is sealed with an adhesive preform that has been pre-applied onto the bonding areas of the lid. The adhesive preforms are formed of a wet adhesive deposited on a release substrate as a preform in predetermined locations with respect to a set of reference guide holes so as to facilitate subsequent attachment to lids with pick-and-place equipment or a guide plate. The wet-adhesive preforms are B-staged or dried to form dry solid adhesive preforms through chemical cross-linking or solvent removal, respectively. In most applications, both the lids and the adhesive preforms are formed of electrically insulating materials. In some cases, however, both the lids and adhesive preforms are formed of electrically conductive materials to replace soldering in providing shielding against electromagnetic interference. In either of these embodiments, the lids and adhesive preforms are attached to the electronic package or module by bonding the adhesive preforms at temperatures that are substantially lower than those at which the soldering of conventional lids is typically performed.

43 Claims, 2 Drawing Sheets